

## REMARKS/ARGUMENTS

Claims 35-54 are currently pending in the application. Claims 1-34 were canceled in a response to a restriction requirement dated August 1, 2005, and may be filed in one or more divisional applications. Applicant requests reconsideration of the application in view of the following remarks.

### Rejections under 35 U.S.C. §112

Claims 38-40 and 46 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Examiner avers that it is not clear exactly what the relationship is between the provision of the second and third materials and the amount of heat.

The second paragraph of 35 U.S.C. 112 is directed to requirements for the claims and states that the specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. There are two separate requirements set forth in this paragraph. The first requirement is that the claims must set forth the subject matter that applicants regard as their invention. The second requirement is that the claims must particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant.

Since this rejection is based on 35 U.S.C. 112, second paragraph, the examiner should explain whether the rejection is based on the first or second requirements. *Ex parte Ionescu*, 222 USPQ 537, 539 (Bd. App. 1984). According to Examiner, this rejection is based on the second requirement. The second requirement is an objective one because it is not dependent on the views of Applicant, or any particular individual, but is evaluated in the context of whether the claim is definite. It has been determined that the standard for assessing whether a patent claim is sufficiently definite depends on if one skilled in the art would understand the bounds of the claim when read in light of the specification. *Exxon Research & Engineering Co. v. United States*, 265 F.3d 1371, 1375, 60 USPQ2d 1272 (Fed. Cir. 2001).

An application fails to comply with the second requirement of 35 U.S.C. 112, second paragraph when the claims do not set out and define the invention with a reasonable degree of precision and particularity. The definiteness of the language must be analyzed, not in a vacuum, but always in light of the teachings of the disclosure as it would be interpreted by one of ordinary skill in the art. In other words, Applicant's claims, interpreted in light of the disclosure, must reasonably apprise a person of ordinary skill in the art of the invention.

Applicant believes that claims 38-40 and 46 satisfy 35 U.S.C. §112, second paragraph because they set out and define the invention with a reasonable degree of precision and particularity when viewed in light of the written description. For example, claim 38 is directed to the method of claim 37 wherein the second and third materials are provided in response to an amount of heat. Claim 39 is directed to the method of claim 35 wherein the second and third materials are provided in response to first and second amounts of heat, respectively, the second amount of heat being greater than the first amount of heat. Claim 40 is directed to the method of claim 35 wherein the second and third materials are provided in response to first and second amounts of heat, respectively, the second amount of heat being less than the first amount of heat.

Applicant believes that these limitations are disclosed sufficiently enough in paragraphs [0007], [0009], [0010], [0011], [0012], [0013], [0014], [0017], [0018], [0019], [0020], [0022], [0057], [0062], [0063], [0064], [0082], [0085], [0087], [0092], [0093] and [0095]. Applicant believes that these paragraphs explain sufficiently enough what happens to the second and third materials when the amount of heat is increased and decreased. Thus, Applicant respectively request that Examiner withdraw his 35 U.S.C. 112 rejection of claims 38-40.

Claim 46 is directed to the method of claim 45 wherein at least a portion of the nanocrystals operate as a nanowire. Applicant believes that he is not required to explain how nanocrystals operate as a nanowire in a claim. Instead, Applicant believes that he can explain this in the written description. Applicant believes that the limitation of how the nanocrystals operate as a nanowire are disclosed sufficiently enough in paragraphs [0009] and [0018], and is shown in FIGS. 18A, 18B and 18C. Thus, Applicant respectively request that Examiner withdraw his 35 U.S.C. 112 rejection of claim 46.

## **Rejections under 35 U.S.C. §102**

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Examiner rejects claims 35-40 under 35 U.S.C. 102(b) as being anticipated by Chianelli (U.S. 4,208,394). Applicant respectfully traverses this rejection and requests reconsideration.

Applicant points out that claim 35 is an independent claim and that claims 36-40 depend from independent claim 35.

Examiner avers that all of the limitations of claims 35-40 are disclosed by Chianelli in column 2, lines 18-37. Applicant disagrees with this statement and believes that Examiner is in error in making it because there are several limitations in claims 35-40 that Chianelli does not disclose in claims 35-40. For example, Chianelli does not disclose the second material as being in powder form, as required by amended claim 35. Instead, Chianelli discloses carbon disulfide to form the transition metal sulfide and carbon tetrahalide in column 2, lines 18-37. Applicant believes that these materials are gases and not powders, so that Chianelli does not disclose all of the limitations of claim 35. If Examiner cannot point out where Chianelli discloses this material in powder form, then Chianelli does not disclose the identical invention in as complete detail as is contained in claim 35 and Examiner's §102 rejection of claim 35 is in error. *Richardson v. Suzuki Motor Co.* Thus, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102(b) rejection of claim 35 in view of Chianelli.

Regarding claims 36-40, Applicant points out that if Chianelli does not disclose all of the limitations of claim 35, then Chianelli will not disclose the limitations of the combination of claim 35 combined with claims 36-40. As discussed above, Applicant believes that Chianelli does not disclose all of the limitations of claim 35. Hence, Chianelli does not disclose all the

limitations of claim 35 combined with claims 36-40 because claims 36-40 depends from claim 35.

Examiner rejects claims 35-40 under 35 U.S.C. 102(b) as being anticipated by Elfline (U.S. 4,678,584). Applicant respectfully traverses this rejection and requests reconsideration.

As mentioned above, claim 35 is an independent claim and that claims 36-40 depend from independent claim 35.

Examiner states that Elfline describes the limitations of claims 35-40 in column 3, lines 29-39. Applicant disagrees with this statement and believes that Examiner is in error in making it because there are several limitations in claims 35-40 that Elfline does not disclose in claims 35-40. For example, Applicant points out that Elfline does not describe the second material as being in powder form, as required by amended claim 35. If Examiner cannot point out where Elfline discloses this material in powder form, then Elfline does not disclose the identical invention in as complete detail as is contained in claim 35 and Examiner's §102 rejection of claim 35 is in error. *Richardson v. Suzuki Motor Co.* Thus, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102(b) rejection of claim 35 in view of Elfline.

Regarding claims 36-40, Applicant points out that if Elfline does not disclose all of the limitations of claim 35, then Elfline will not disclose the limitations of the combination of claim 35 combined with claims 36-40. As discussed above, Applicant believes that Elfline does not disclose all of the limitations of claim 35. Hence, Elfline does not disclose all the limitations of claim 35 combined with claims 36-40 because claims 36-40 depends from claim 35.

Examiner rejects claims 41-48 under 35 U.S.C. 102(b) as being anticipated by Kinsman et al. (U.S. 6,303,097). Applicant respectfully traverses this rejection and requests reconsideration.

Applicant points out that claim 41 is an independent claim and that claims 42-48 depend from independent claim 41.

Examiner avers that all of the limitations of claims 41-48 are disclosed by Kinsman. Applicant disagrees with this statement and believes that Examiner is in error in making it because there are several limitations in claims 41-48 that Kinsman does not disclose in claims 41-48. For example, Kinsman does not disclose the second material as being in powder form, as required by amended claim 41. If Examiner cannot point out where Kinsman discloses this material in powder form, then Kinsman does not disclose the identical invention in as complete detail as is contained in claim 41 and Examiner's §102 rejection of claim 41 is in error. *Richardson v. Suzuki Motor Co.* Thus, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102(b) rejection of claim 41 in view of Kinsman.

Regarding claims 42-48, Applicant points out that if Kinsman does not disclose all of the limitations of claim 41, then Kinsman will not disclose the limitations of the combination of claim 41 combined with claims 42-48. As discussed above, Applicant believes that Kinsman does not disclose all of the limitations of claim 41. Hence, Kinsman does not disclose all the limitations of claim 41 combined with claims 42-48 because claims 42-48 depends from claim 41.

Claim 45 is directed to the method of claim 41 wherein the fifth material includes nanocrystals of the compound. Applicant believes that Kinsman does not disclose any materials which include nanocrystals of any compound. Applicant believes that Examiner has made an error in asserting that Kinsman discloses nanocrystals. If Kinsman does not disclose the limitations of claim 45, then he does not disclose all of the limitations of claim 45 combined with claim 41. Hence, Applicant respectfully requests that Examiner withdraw his 35 U.S.C.

102 (b) rejection of claim 45 because Kinsman does not disclose all of the limitations of claim 45.

Claim 46 is directed to the method of claim 45 wherein at least a portion of the nanocrystals operate as a nanowire. Applicant believes that Kinsman does not disclose any materials which include nanocrystals wherein the nanocrystals operate as a nanowire. Applicant believes that Examiner has made an error in asserting that Kinsman discloses nanocrystals that operate as a nanowire. If Kinsman does not disclose the limitations of claim 46, then he does not disclose all of the limitations of claim 46 combined with claims 41 and 45. Hence, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102 (b) rejection of claim 46 because Kinsman does not disclose all of the limitations of claim 46.

Claim 47 is directed to the method of claim 45 wherein the nanocrystals absorb a desired wavelength range of light. Applicant believes that Kinsman does not disclose any materials which include nanocrystals which absorb a desired wavelength of light. Applicant believes that Examiner has made an error in asserting that Kinsman discloses nanocrystals which absorb a desired wavelength of light. If Kinsman does not disclose the limitations of claim 47, then he does not disclose all of the limitations of claim 47 combined with claims 41 and 45. Hence, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102 (b) rejection of claim 47 because Kinsman does not disclose all of the limitations of claim 47.

Claim 48 is directed to the method of claim 45 wherein the dimensions, shape, composition, and/or absorption wavelength of the nanocrystals is adjustable in response to the first amount of heat, second amount of heat, the type of metal element, the concentration of the metal element, the type of chalcogen element, and/or the concentration of the chalcogen element. Applicant believes that Kinsman does not disclose any of these limitations. Applicant believes that Examiner has made an error in asserting that Kinsman discloses any of them. If Kinsman does not disclose the limitations of claim 48, then he does not disclose all of the limitations of claim 48 combined with claim 41. Hence, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102 (b) rejection of claim 48 because Kinsman does not disclose all of the limitations of claim 48.

Examiner rejects claims 49-54 under 35 U.S.C. 102(b) as being anticipated by Takada et al. (U.S. 5,958,281). Applicant respectfully traverses this rejection and requests reconsideration.

Applicant points out that claim 49 is an independent claim and that claims 50-54 depend from independent claim 49.

Examiner avers that all of the limitations of claims 49-54 are disclosed by Takada. Applicant disagrees with this statement and believes that Examiner is in error in making it because there are several limitations in claims 49-54 that Takada does not disclose in claims 49-54. For example, Takada does not disclose the chalcogen material in powder form, as required by amended claim 49. Takada discloses silicon in powder form, but Applicant believes that silicon does not include a chalcogen element. Takada discloses molten sulfur, but Applicant believes that molten sulfur is not a powder which includes a chalcogen element. If Examiner cannot point out where Takada discloses this material in powder form, then Takada does not disclose the identical invention in as complete detail as is contained in claim 49 and Examiner's §102 rejection of claim 49 is in error. *Richardson v. Suzuki Motor Co.* Thus, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102(b) rejection of claim 49 in view of Takada.

Regarding claims 50-54, Applicant points out that if Takada does not disclose all of the limitations of claim 49, then Takada will not disclose the limitations of the combination of claim 49 combined with claims 50-54. As discussed above, Applicant believes that Takada does not disclose all of the limitations of claim 49. Hence, Takada does not disclose all the limitations of claim 49 combined with claims 50-54 because claims 50-54 depends from claim 49.

Examiner rejects claims 41-54 under 35 U.S.C. 102(b) as being anticipated by the English abstract of Chinese Patent Number CN 1251348. Applicant respectfully traverses this rejection and requests reconsideration.

Applicant points out that claim 41 is an independent claim and that claims 42-48 depend from independent claim 41. Further, claim 49 is an independent claim with claims 50-54 being dependent claims depending therefrom.

Independent claim 41 includes the limitation of providing a second material, in powder form, which includes a chalcogen element and independent claim 49 includes the limitation of providing a chalcogen material, in powder form, which includes a chalcogen element. Applicant has read the English Abstract of CN 1251348 and it does not disclose any material being in powder form. In particular, it does not disclose the Chalcogen material being in powder form. If Examiner cannot point out where CN 1251348 discloses this material in powder form, then CN 1251348 does not disclose the identical invention in as complete detail as is contained in claim 49 and Examiner's §102 rejection of claims 41 and 49 is in error. *Richardson v. Suzuki Motor Co.* Thus, Applicant respectfully requests that Examiner withdraw his 35 U.S.C. 102(b) rejection of claims 41 and 49 in view of CN 1251348.

Regarding claims 42-48 and 50-54, Applicant points out that if CN 1251348 does not disclose all of the limitations of claims 41 and 49, then CN 1251348 will not disclose the limitations of claims 42-48 combined with claim 41 or claims 50-54 combined with claim 49. As discussed above, Applicant believes that CN 1251348 does not disclose all of the limitations of claims 41 and 49. Hence, CN 1251348 does not disclose all the limitations of claims 42-48 combined with claim 41 because claims 42-48 depend from claim 41. Further, CN 1251348 does not disclose all of the limitations of claims 50-54 combined with claim 49 because claims 50-54 depend from claim 49.

Claim 42 is amended to claim that the fifth material is formed in response to a reaction between the fourth material and a metal material. Examples of metal materials include transitions metals, lanthanide metals, actinide metals, etc. The metal material can be a metal compound or a metal element.

## CONCLUSION

Applicant respectfully requests reconsideration of this application in view of the remarks and arguments provided above. Applicant has not amended any claims in this response because the cited references are not material to the patentability of Applicant's claims. Applicant believes that the cited references do not anticipate or make obvious Applicant's claimed invention. Because of this, Applicant respectfully requests a timely Notice of Allowance to be issued for this case.

Respectfully submitted,



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